

APPENDIX E: DATA RECORDS FOR SEDIMENT YIELD CALCULATIONS

TI RECORDS -- Title Records.....	E-1
F# RECORD -- Field Indicator Record.....	E-2
ME RECORD -- Metric Indicator Record.....	E-3
JP RECORD -- Job Parameters Record.....	E-4
QQ RECORD -- Water Discharge Record	E-6
QD RECORD -- Discharge Duration Record.....	E-7
QH RECORD -- Discharge Hydrograph Record.....	E-8
QW RECORD -- Water Discharge Record (for Sediment Rating Curve).....	E-9
QS RECORD -- Sediment Discharge Record (in tons/day)	E-10
SC RECORD -- Sediment Discharge Record (in mg/l).....	E-11
SE RECORD -- Sediment Equation Record.....	E-12
FD FILE -- Flow Duration file	E-13
\$JOB RECORD -- "\$JOB" Record.....	E-14
\$\$END RECORD -- " \$\$END" Record.....	E-15

GENERAL NOTES

The following are conventions used in the record descriptions in this appendix.

- a1.@! These characters in the "value" column means that any alpha or numeric characters can go in that field; generally it is a comment field.
- b This character in the "value" column indicates a blank field.

TI RECORDS

Up to 10 title records are permitted. T1, T2, and T3 records are also permitted as title records.

Example:

TI Use these title cards to define the job, the date, the Investigator, the
TI model #, the data source, the purpose for this run, and changes from TI previous runs.
F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
--------------	-----------------	--------------	--------------------

0	TI	Record Identification in columns 1 and 2. Use TI for all records.
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F# RECORDS

Marks each data field by column numbers, each field being 8 columns wide. There can be only 1 F# record.

Example:

TI Title cards

TI Title cards

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
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0	F#		Record Identification in columns 1 and 2.
---	----	--	---

ME RECORD

The ME Record controls whether the calculations are made in English or in metric units. There is only one ME-record.

Example:

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
ME METRIC

ME 0

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
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0	-	ME	Record Identification - Metric or English flag.
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1	METRIC	1	Calculations made in English units. This is the default.
---	--------	---	---

0	Calculations made in metric units.
---	------------------------------------

JP RECORD

The JP record provides basic options for yield calculations. There can be only 1 JP record.

Example:

The following example shows typical input specifying 20 intervals for output display. The time step for a hydrograph is 5 minutes, or 0.083 hours. For all other fields the defaults are accepted, as indicated by the blank fields.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678

JP NCLCD IFMT NIS RWY YEAR PER UWD

JP .083

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
--------------	-----------------	--------------	--------------------

0 JP Record Identification

1 NCLPD + Number of class intervals to use for displaying results.
b default = 20
max = 365

2 IFMT + Format of input.
b,1 Input described in these instructions.

3 NCLCD + Number of integration steps for Flow-Duration Option.
b default = 365
max = 2000.

4 RWY + Ratio to multiply times the water discharge to scale water yield value.
b default = 1.

5 YEAR b,+ Time period represented by the flow duration curve in days. Usually the curve represents a year so the program defaults to 365 days. In some cases a curve may represent a day, a month or a single event in which case that number of days should be coded here.
b default = 365

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
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6 PER + Time between hydrograph ordinates, in hours,
when using the hydrograph option.
b default = 24.

7 UWD + Specific Weight of sediment in pounds/cubic
foot.
b default = 93.

NOTE: This default is a good estimate for streams that are largely medium sand. This default is also a good estimate for sand bed streams when making BED MATERIAL LOAD calculations. Modify this parameter as appropriate for wash load or total load calculations, and for calculations of bed material load on gravel bed streams.

QQ RECORD

The QQ record is the listing of all discharges, Q, to be used for this run, in either increasing or decreasing order. There can be a maximum of 10 QQ records. Each Q will be paired with a duration, from the QD record.

NOTE: Do not use zero as the first or last discharge -- perhaps use 0.0001.

Example.

The following example shows typical input specifying 21 different Q's.

```
F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678  
QQ FLOW1 FLOW2 FLOW3 FLOW4 FLOW5 ... up to 10,000
```

```
QQ 15 326 633 939 1244 1550 1856 2162 2469 2774  
QQ 3080 3386 3692 3998 4304 4610 4916 5222 5528 5834  
QQ 6140
```

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	QQ		Record Identification = Discharge list
1	FLOW(1)	+	First discharge
2-10	FLOW(2) - FLOW(10)	+	Continue coding discharges, 10 per record.

QD RECORD

The QD record is the listing of the percent of time, QD, the corresponding discharge on the QQ record is equaled or exceeded. Durations do not have to be at a constant interval, and can be in increasing or decreasing order. There can be a maximum of 10 QD-records.

Example.

The following example shows typical input specifying 21 different QD's.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
QD DUR1 DUR2 DUR3 DUR4 DUR5 ... up to 10,000

QD 100.0 44.37 14.5 6.49 3.52 2.16 1.34 .83 0.52 0.36
QD 0.26 0.18 0.12 0.08 0.08 0.05 0.05 0.05 0.05 0.01
QD 0.0

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	QD	Record Identification = Discharge duration	
1	DUR(1)	+	Duration for 1st discharge,
2-10	DUR(2) - DUR(10)	+	Continue coding durations, 1 for each discharge, maximum of 10 per record.

QH RECORD

The QH record is the listing of the water discharge, in cfs, by the hydrograph ordinate. There can be a maximum of 25 Qhrecords. Zero is an acceptable discharge on the QH record.

Example.

The following example shows typical input specifying 4 different QH's.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
QH FLOH1 FLOH2 FLOH3 FLOH4 FLOH5 ... up to 10,000

QH 1 300 1300 7000

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	QH		Record Identification = Discharge -- hydrograph.
1	FLOH(1)	+	Hydrograph ordinate for flow 1, cfs.
2-10	FLOH(2) -	+	Hydrograph ordinate for each flow, maximum of FLOH(10) 10 per record.

QW RECORD

The QW record is the listing of the water discharge in cfs, and will be paired with a sediment discharge from the QS or SC record. The water discharges may be in either increasing or decreasing order, and there can be up to 10 values. Each QW field corresponds to exactly one QS field so the two records must be in the same order. There can be only 1 QW-record.

NOTE: Do not use zero as the first or last discharge -- perhaps use 0.0001.

Example.

The following example shows typical input specifying 4 different QW's.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
QW Q1 Q2 Q3 Q4 Q5 ... up to 10

QW 1 300 1300 7000

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	QW		Record Identification = Discharge -- water.
1	Q(1)	+	1st discharge, cfs.
2-10	Q(2) - Q(10)	+	List each water discharge, in cfs; maximum of 10 per record.

QS RECORD

The QS record is the listing of the sediment discharge in tons per day, and will be paired with a water discharge from the QW record. Each QS field corresponds to exactly one QW field so the two records must be in the same order. There can be only 1 QS record.

Example.

The following example shows typical input specifying 4 different QS's.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
QS QSR1 QSR2 QSR3 QSR4 QSR5 ... up to 10

QS 1 300 1300 7000

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	QS		Record Identification = Discharge -- sediment.
1	QSR(1)	+	First sediment discharge, in tons per day.
2-10	QSR(2) - QSR(10)	+	Continue coding sediment discharge, 1 for each water discharge, maximum of 10 per record.

SC RECORD

The SC record is the listing of the sediment concentration in mg/l, and will be paired with a water discharge in cfs from the QW record. There can be only 1 SC-record. The SC record must follow the QW record in the data file.

Example.

The following example shows typical input specifying 4 different SC's.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
SC QSR1 QSR2 QSR3 QSR4 QSR5 QSR6 QSR7 QSR8 QSR9 QSR10

SC 1 5 13 60

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	SC	Record Identification = Sediment Concentration	
1-10	QSR(1)- QSR(10)	+ maximum of 10.	List each sediment concentration in mg/l;

SE RECORD

The SE record allows the user to specify the variables for the power equation from which to calculate the sediment discharge in tons/day. There can be only 1 SC-record. The fields on the record prescribe 2 of the variables in the power equation:

$$QSR = AX (QW)^{BX}$$

Example.

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678

SE AX BX

SE 1.356 0.47529

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	SE		Record Identification = Sediment power Equation
1	AX		The AX variable in the above power equation.
2	BX		The BX variable in the above power equation.

FD FILE

This record is not part of the standard SAM.yld input file; rather it belongs in the Flow Duration and Hydrograph Data File (see the SAM manual, section 4.4). The default name for this file is CDFFIL. With this format, the first record in the file contains only the number of points in the file. Subsequent records are DURATION in % and Q in CFS. The following example shows column numbers, but this line must not be in the file. Each FD record must be set up with FD in the first two columns, the first number ending in column 11, and the second number, if there is one, ending in column 28.

NOTE: Do not use zero as the first or last discharge -- perhaps use 0.0001.

```
DUR      Q    = VARIABLES   DO NOT CODE THIS LINE
%        CFS           DO NOT CODE THIS LINE
1234567890 234567890 234567890 = COLUMN #   DO NOT CODE THIS LINE

FD      5          (THIS SHOULD BE THE 1ST LINE)
FD     100
FD     10
FD      5
FD      1
FD    .001
```

\$JOB RECORD

For stacked runs, the \$JOB record indicates the end of one job--the start of a new input data set.

Example:

```
F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678  
$JOB
```

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
0	\$JOB		Record identification = NEW JOB

\$\$END RECORD

This record signifies the end of the run.

Example:

F# 45678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678 2345678
\$\$END

<u>Field</u>	<u>Variable</u>	<u>Value</u>	<u>Description</u>
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0	\$\$END	Record identification = END OF RUN.	
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